RESIDENTIAL/COMMERCIAL DEVELOPMENT
200 MAIN STREET EAST, KINGSVILLE

TRAFFIC IMPACT ASSESSMENT

F. R. Berry & Associates
June, 2017

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

RESIDENTIAL/COMMERCIAL DEVELOPMENT
200 MAIN STREET EAST, KINGSVILLE

TRAFFIC IMPACT ASSESSMENT

1. INTRODUCTION AND BACKGROUND

HVM Holdings Inc. has proposed the development of a vacant site at 200 Main Street East in Kingsville. The location of the site is shown in **Figure 1**. The proposed development will include two apartment buildings, each with 60 units and a 20 000sf medical dental office. The primary access to the site will be from Main Street East while a secondary access will be provided via a connection to Woodycrest Avenue at the north end of the site.

The purpose of this report is to estimate the potential vehicle trip generation of the proposed development and to assess the impact of these trips on the adjacent street system.

2. EXISTING CONDITIONS

Main Street East in the vicinity of the site is a three lane arterial street with a posted speed limit of 50km/h. The centre lane allows for left turns in both directions except at intersections where dedicated left turn lanes are provided.

Woodycrest Avenue is a two lane local street which forms part of the street network for the Remark residential subdivision north of the site. Currently, Woodycrest Avenue ends in a stub at the north limit of the HVM site.

The existing Kingsville High School is located immediately to the west of the site. It is understood that the Greater Essex County District School Board intends to relocate the school to another site within the next few years.

It is also understood that vacant lands on the south side of Main Street may be developed in the future. No information is available on this potential development and thus any traffic volumes likely to be generated by the development are not included in this study.

Land uses in the area are primarily residential. There is a commercial node to the east at the intersection of Main Street East and Jasperson Drive including a food store, a small retail plaza and some highway commercial uses.

For the purposes of this study, traffic counts were made on March 23 and March 28, 2017 at the intersection of Main Street East with the school entrance driveway to the west of the site and at the signalized intersection of Main Street with Wigle Avenue and Remark Drive. **Figure 2** shows peak hour turning movements derived from these counts. Appendix A contains the traffic count reports.

Figure 2 shows assumed peak hour volumes on Main Street East at the future site access. These volumes were obtained by taking the larger of the approach volumes from the counts to the east and west.

3. PROPOSED DEVELOPMENT

The preliminary site plan is shown in **Figure 3.** It should be noted that the plan is subject to change during the approval process.

Each of the two apartment buildings will contain 60 units. A two storey medical-dental office is proposed for the portion of the site adjacent to Main Street East. The total floor area for the office building will be 20 000sf.

Peak hour vehicle trip generation was estimated using rates and equations contained in the Institute of Transportation Engineers (ITE) Trip Generation Manual, Eighth Edition. Regression equations for ITE Land Use 220, Apartment, were used to estimate the residential trip component. Trip generation for the medical-dental office was estimated using average rates for ITE Land Use 720, Medical-Dental Office. Peak hour vehicle trip estimates are summarized in Table 1.

Peak hour trip generation for both uses were aggregated to give total site vehicle trip generation. No allowance was made for any internal trips between the residential and office components.

Peak hour vehicle trips were assigned separately as shown in **Figures 4** and **5**. Trips generated by the residential component were assigned to Main Street East in proportion to existing directional flows.

Trips generated by the office component were assigned as follows:

Woodycrest Avenue	10 percent
West on Main Street	70 percent
East on Main Street	20 percent

Figure 6 shows the total assignment of site generated trips.

4. ANALYSIS

4.1 Projected Traffic

Traffic projections were made for 2018, the assumed build-out year, and for 2023, five years beyond build-out. An annual traffic growth rate of two percent was assumed for the projections.

Figure 7 shows estimated 2018 background traffic while **Figure 8** shows estimated 2023 background traffic. Total projected peak hour traffic volumes for 2018 and 2023 are shown in **Figures 9** and **10** respectively. The turning movement volumes shown in **Figures 9** and **10** were obtained by adding site generated traffic from **Figure 6** to background traffic from **Figures 7** and **8**.

4.2 Sight Distance

Sight distance in both directions on Main Street East from the proposed site access is unrestricted. Sight distance is not an issue.

4.3 Level of Service

The intersections of Main Street East with the site access and with Wigle Avenue/Remark Drive were analyzed for volume to capacity (v/c) ratios, delays and queue lengths using the Synchro 6 analysis program. Analyses were made for existing conditions at Main Street East and Wigle Avenue/Remark Drive and for projected conditions at both intersections.

Results of the analyses are summarized in **Tables 2** and **3**. Analysis reports are contained in Appendix B.

Level of service is a measure of how well an intersection operates under prevailing traffic conditions. It is expressed on a scale of A to F where A is the highest level of service and F indicates unacceptable congestion and delay. Level of service is measured in terms of average delay to all vehicles passing through the intersection in the peak hour.

4.3.1 Main Street East and Site Access (Table 2)

Under projected 2018 and 2023 peak hour conditions, the intersection will operate at an acceptable level of service with stop control and a single shared lane on the driveway access. In the afternoon peak hour, the exit movement will operate at level of service D at build-out and at level of service E at the five year planning horizon. Level of service E is generally considered acceptable for a driveway access to an arterial street.

Under projected 2023 conditions, the v/c ratio would be 0.47 for this movement, indicating reserve capacity, while the 95th percentile queue length would be 16.7 metres, suggesting that up to three vehicles could be waiting to exit the site at any time in the peak hour.

The calculated queue length for the eastbound left turn movement is less than 1.3 metres. Conversion of the existing two-way left turn lane to provide for the design minimum 15 metres of storage would be required.

4.3.2 Main Street and Wigle Avenue/Remark Drive (Table 3)

The analysis of existing conditions is included in Appendix B but is not shown in **Table 3**. The results are very similar to those for the projected 2018 condition.

A semi-actuated unco-ordinated signal phasing was assumed for the intersection with a total cycle length of 70 seconds. Minimum splits were used in the analysis, resulting in high v/c ratios and queue lengths for the east-west movements. Average delays for all movements resulted in levels of service ranging from A to C in the projected 2023 afternoon peak hour.

The analysis indicated that, overall, the intersection would operate at a good level of service under projected peak hour conditions. It is recognized that traffic volumes on Wigle Avenue, which provides access to the harbour and the Pelee Island ferry, are likely to be higher in the summer months. However, the allowance of a longer green time for this approach would permit higher approach volumes with no change in the impact on the Main Street approaches.

5. CONCLUSIONS AND RECOMMENDATIONS

The proposed residential/commercial development will generate 109 vehicle trips in the morning peak hour and 153 vehicle trips in the afternoon peak hour. It is estimated that ten percent of the trips generated by the medical-dental office use will access the site via Woodycrest Avenue.

At the site access on Main Street East, sight distance is not an issue.

The intersection of Main Street East and the site access will operate at an acceptable level of service under projected peak hour conditions. No improvements will be required on Main Street East other than the conversion of part of the two-way left turn lane to provide an exclusive eastbound left turn lane with 15 metres of storage.

The intersection of Main Street East and Wigle Avenue/Remark Drive will continue to operate at an acceptable level of service under projected peak hour conditions. No improvements are required at this intersection.

ITE Land Use		AM Peak Hour				PM Peak Hour			
		Ave. Rate	total	in	out	Ave. Rate	total	in	out
220	Apartment 120du	eq'n	63	13	50	eq'n	84	54	30
720	Medical-Dental Office 20 000sf	2.30	46	36	10	3.46	69	19	50
	Total		109	49	60		153	73	80

Table 1

Vehicle Trip Generation

Intersection	AM Peak Hour				PM Peak Hour			
	v/c	Del.	LofS	Q	v/c	Del.	LofS	Q
Total 2018								
Eastbound L	0.03	8.3	A	0.7	0.05	9.9	A	1.2
Eastbound T	0.31	0.0	-	0.0	0.39	0.0	-	0.0
Westbound TR	0.25	0.0	-	0.0	0.50	0.0	-	0.0
Southbound LR	0.18	17.5	C	5.0	0.39	32.4	D	13.0
Intersection ICU			38.8%				59.1%	
LofS			A				B	
Total 2023								
Eastbound L	0.03	8.5	A	0.8	0.06	10.3	B	1.3
Eastbound T	0.34	0.0	-	0.0	0.43	0.0	-	0.0
Westbound TR	0.28	0.0	-	0.0	0.55	0.0	-	0.0
Southbound LR	0.20	19.4	C	5.7	0.47	42.3	E	16.7
Intersection ICU			38.8%				63.9%	
LofS			A				B	

Note: Del. - ave. delay (secs.)

LofS - level of service

v/c - volume to capacity ratio

ICU - intersection capacity utilization

Q - maximum queue length (metres)
(95th percentile)

Table 2

Level of Service
Main Street and Site Access

Intersection	AM Peak Hour				PM Peak Hour			
	v/c	Del.	LofS	Q	v/c	Del.	LofS	Q
Background 2018								
Eastbound L	0.03	6.7	A	2.0	0.11	6.7	A	3.4
Eastbound TR	0.74	16.1	B	73.2	0.81	20.4	C	102.6
Westbound L	0.25	8.1	A	8.3	0.32	8.1	A	9.6
Westbound Tr	0.44	10.3	B	42	0.85	22.2	C	150.1
Northbound LTR	0.25	9.6	A	14.9	0.37	13.5	B	21.4
Southbound LTR	0.10	10.7	B	8.7	0.11	13.3	B	9.1
Intersection ICU			57.0%				72.0%	
LofS			B				B	
Total 2018								
Eastbound L	0.03	6.5	A	2.0	0.12	6.8	A	3.4
Eastbound TR	0.76	16.8	B	80.4	0.82	21.7	C	125.7
Westbound L	0.26	8.2	A	8.3	0.34	8.5	A	9.6
Westbound TR	0.44	10.3	B	43.7	0.87	24.3	C	160.4
Northbound LTR	0.26	10.1	B	15.3	0.39	14.3	B	22.6
Southbound LTR	0.10	11.0	B	8.7	0.11	13.4	B	9.1
Intersection ICU			58.8%				74.0%	
LofS			B				C	
Background 2023								
Eastbound L	0.03	6.5	A	2.1	0.15	7.5	A	3.7
Eastbound TR	0.79	18.3	B	85.9	0.83	24.4	C	139.2
Westbound L	0.28	7.8	A	8.9	0.40	9.8	A	10.5
Westbound TR	0.44	10.2	B	47.3	0.88	27.8	C	175.3
Northbound LTR	0.29	10.2	B	16.2	0.43	15.0	B	24.2
Southbound LTR	0.12	11.0	B	9.3	0.13	13.3	B	9.8
Intersection ICU			61.0%				77.5%	
LofS			B				C	
Total 2023								
Eastbound L	0.03	6.4	A	2.1	0.15	7.5	A	3.7
Eastbound TR	0.82	19.3	B	94	0.85	26.5	C	147.5
Westbound L	0.30	8.0	A	8.9	0.43	10.6	B	10.5
Westbound TR	0.45	10.2	B	49.4	0.91	30.9	C	185.1
Northbound LTR	0.30	10.6	B	16.4	0.45	16.3	B	25.7
Southbound LTR	0.12	11.1	B	9.3	0.14	13.4	B	9.8
Intersection ICU			63.4%				79.6%	
LofS			B				C	

Note: Del. - ave. delay (secs.)

LofS - level of service

v/c - volume to capacity ratio

ICU - intersection capacity utilization

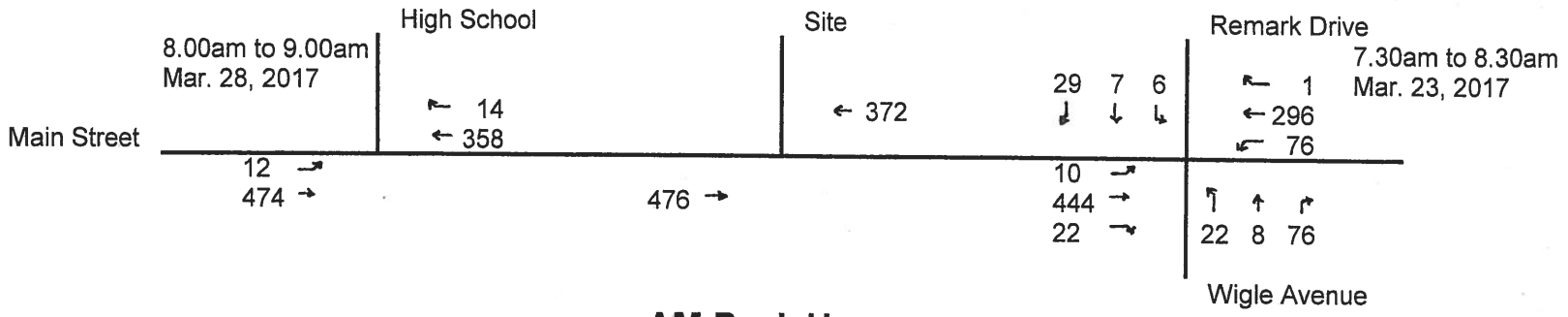
Q - maximum queue length (metres)
(95th percentile)

Table 3

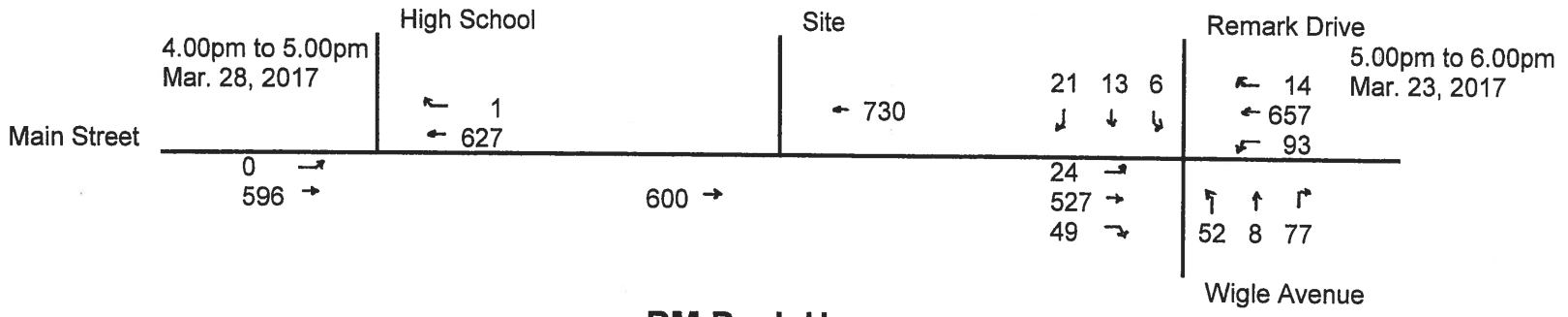
Level of Service
Main Street and
Wigle Ave./Remark Dr.

Figure 1

Area Plan



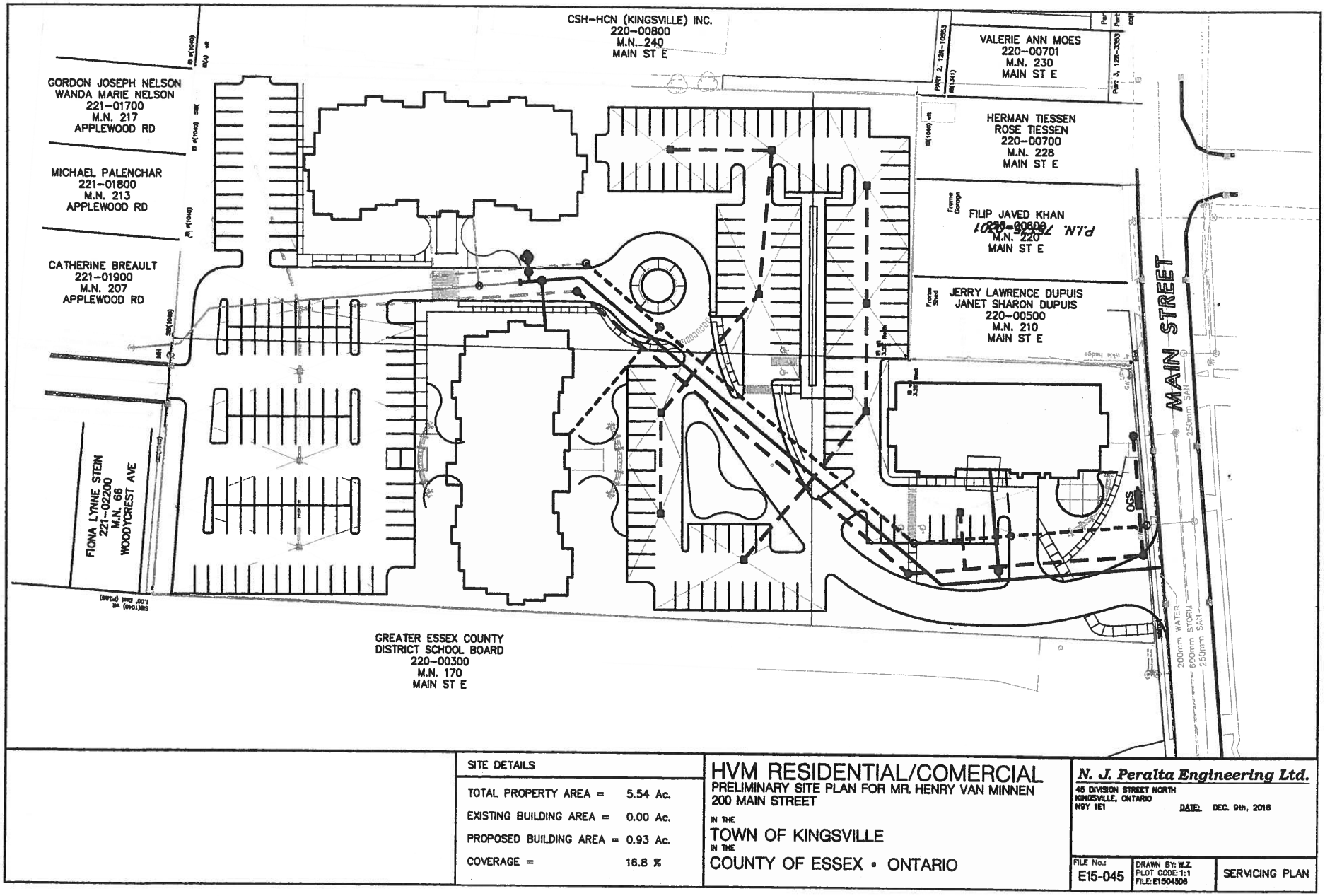
AM Peak Hour



PM Peak Hour

Figure 2

Existing Traffic



SITE DETAILS	
TOTAL PROPERTY AREA =	5.54 Ac.
EXISTING BUILDING AREA =	0.00 Ac.
PROPOSED BUILDING AREA =	0.93 Ac.
COVERAGE =	16.8 %

HVM RESIDENTIAL/COMERCIAL
PRELIMINARY SITE PLAN FOR MR. HENRY VAN MINNEN
200 MAIN STREET
IN THE
TOWN OF KINGSVILLE
IN THE
COUNTY OF ESSEX • ONTARIO

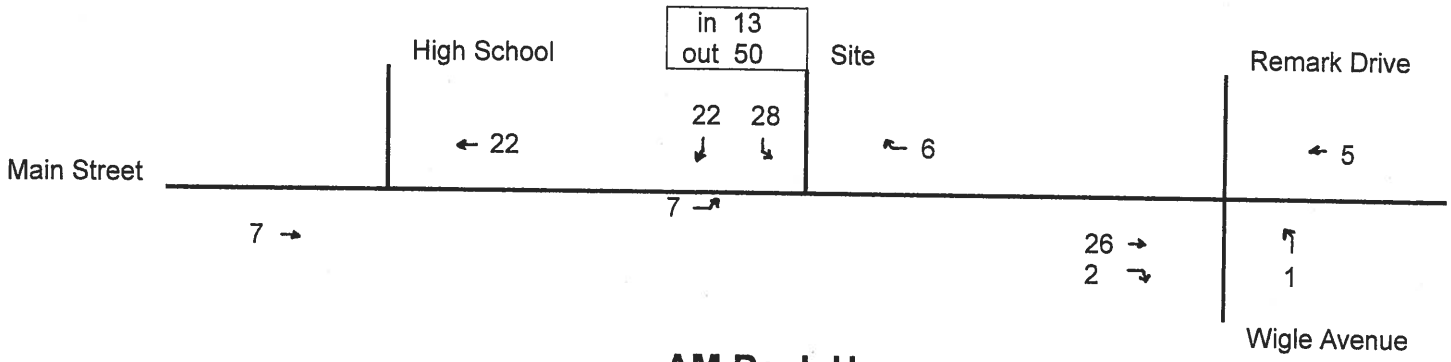
N. J. Peralta Engineering Ltd.
45 DIVISION STREET NORTH
KINGSVILLE, ONTARIO
N9Y 1E1

DATE: DEC. 9th, 2016

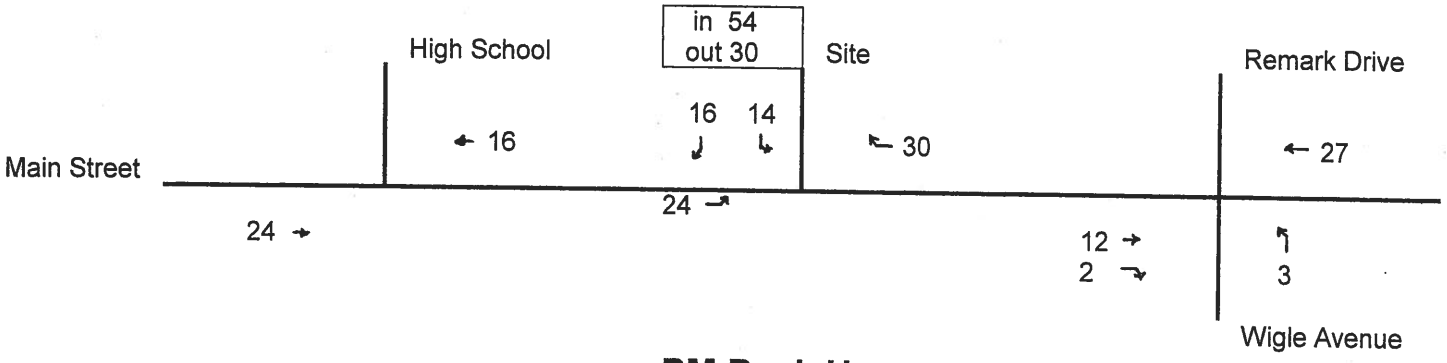
FILE No.:	DRAWN BY: W.Z. PLOT CODE: 1:1 FILE: E1504506	SERVICING PLAN
E15-045		

Figure 3

Site Plan



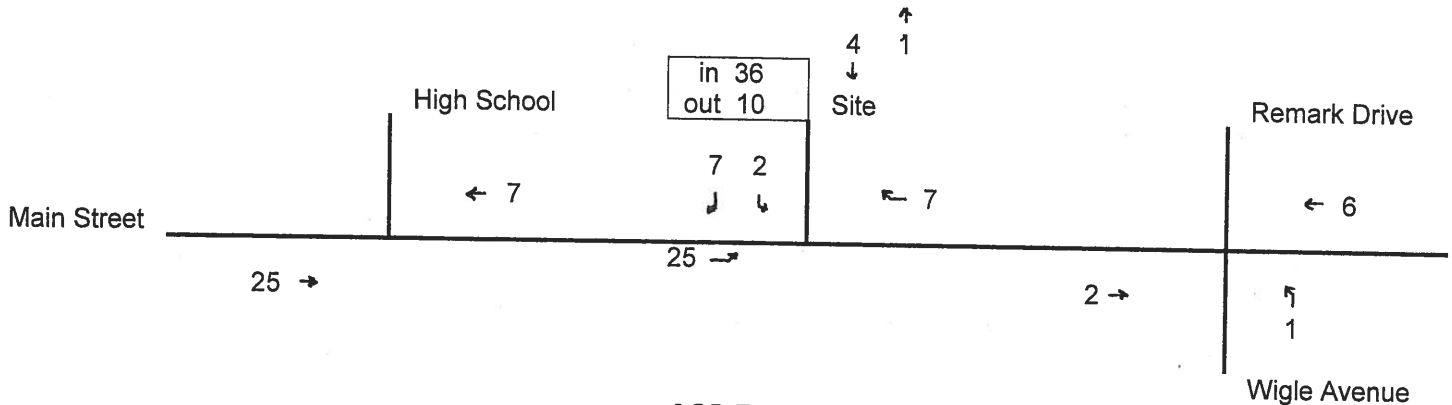
AM Peak Hour



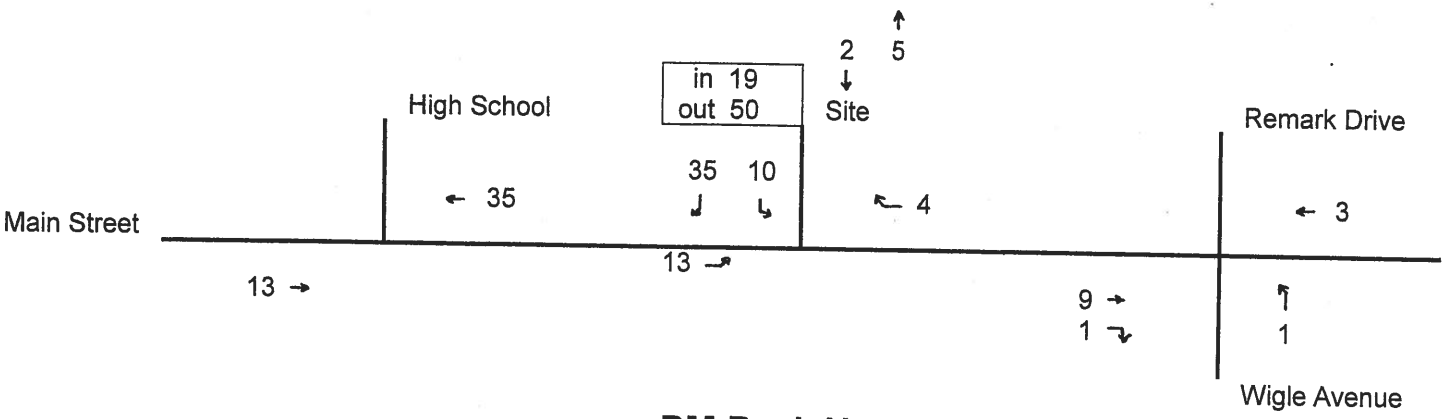
PM Peak Hour

Figure 4

Site Generated Traffic - Residential



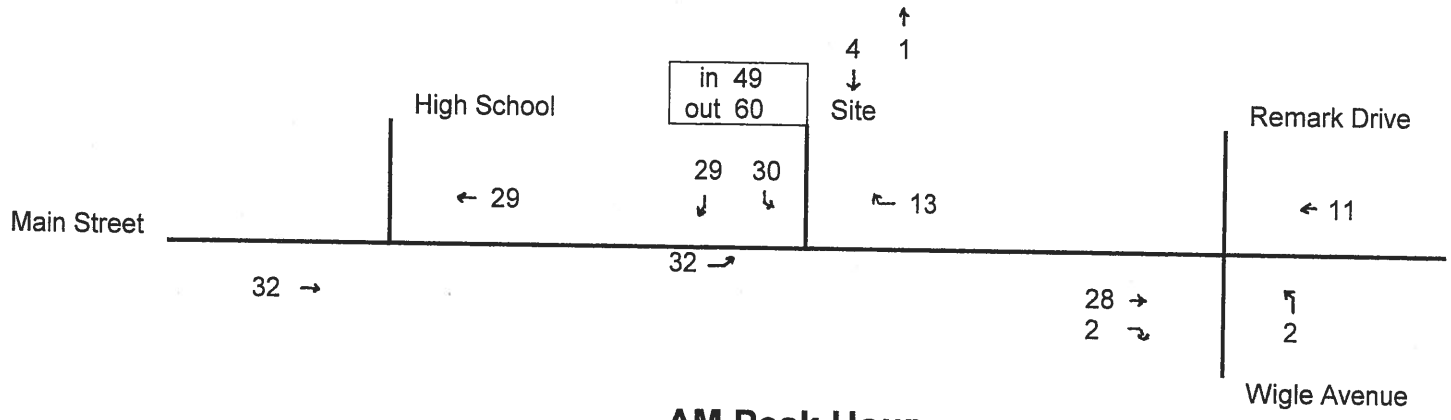
AM Peak Hour



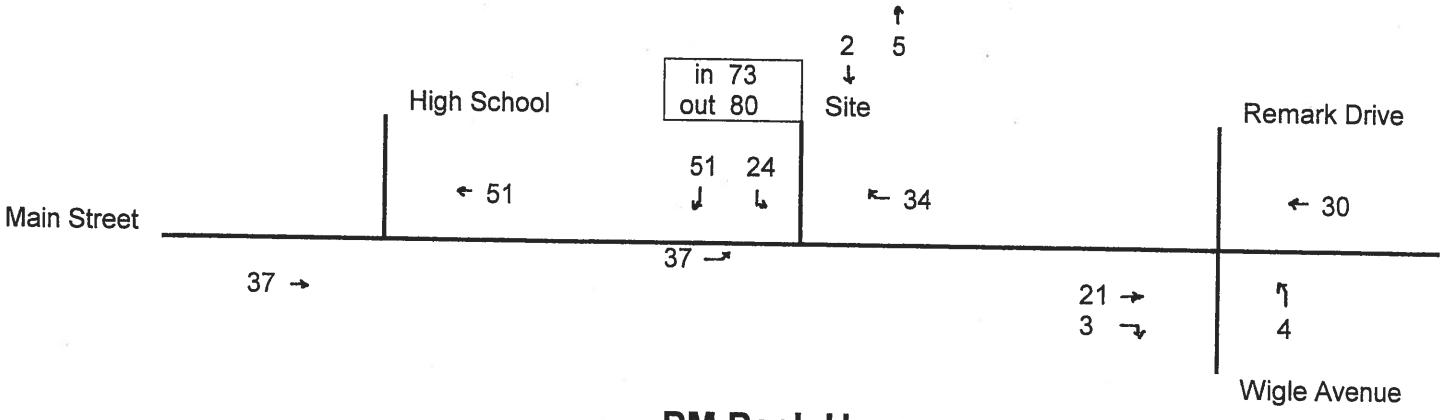
PM Peak Hour

Figure 5

Site Generated Traffic - Office



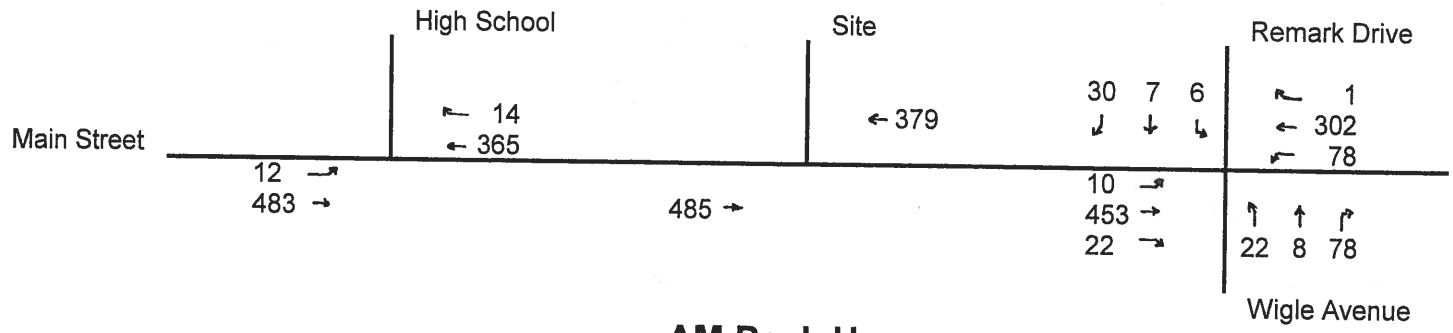
AM Peak Hour



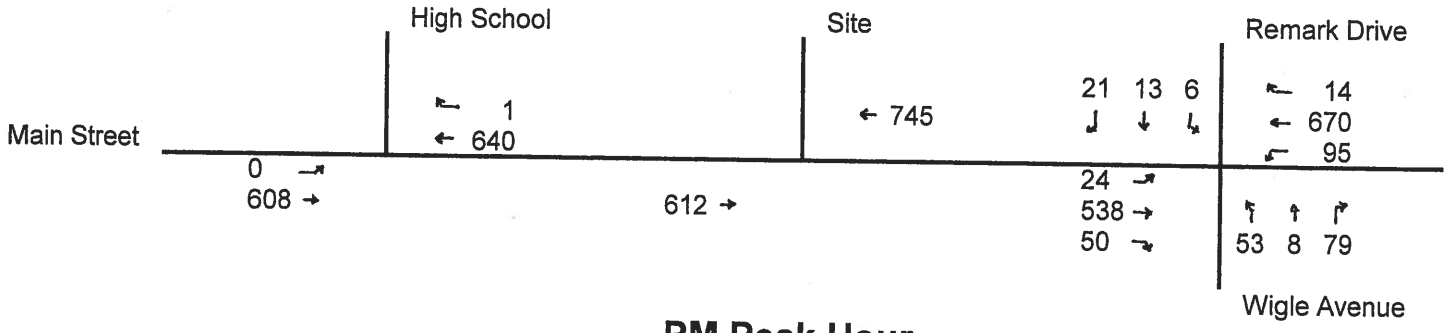
PM Peak Hour

Figure 6

Site Generated Traffic - Total



AM Peak Hour



PM Peak Hour

Figure 7

Background Traffic 2018

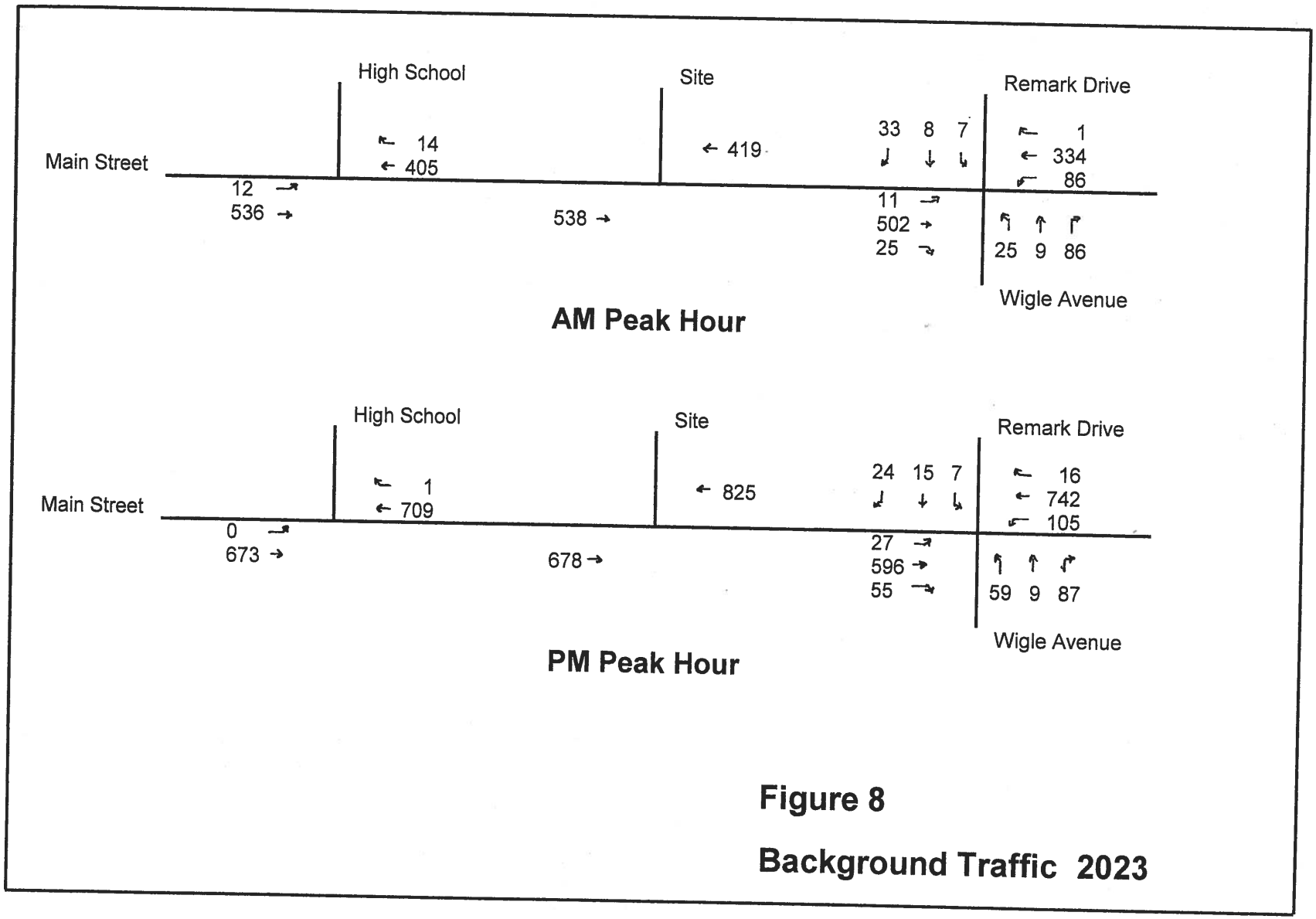


Figure 8

Background Traffic 2023

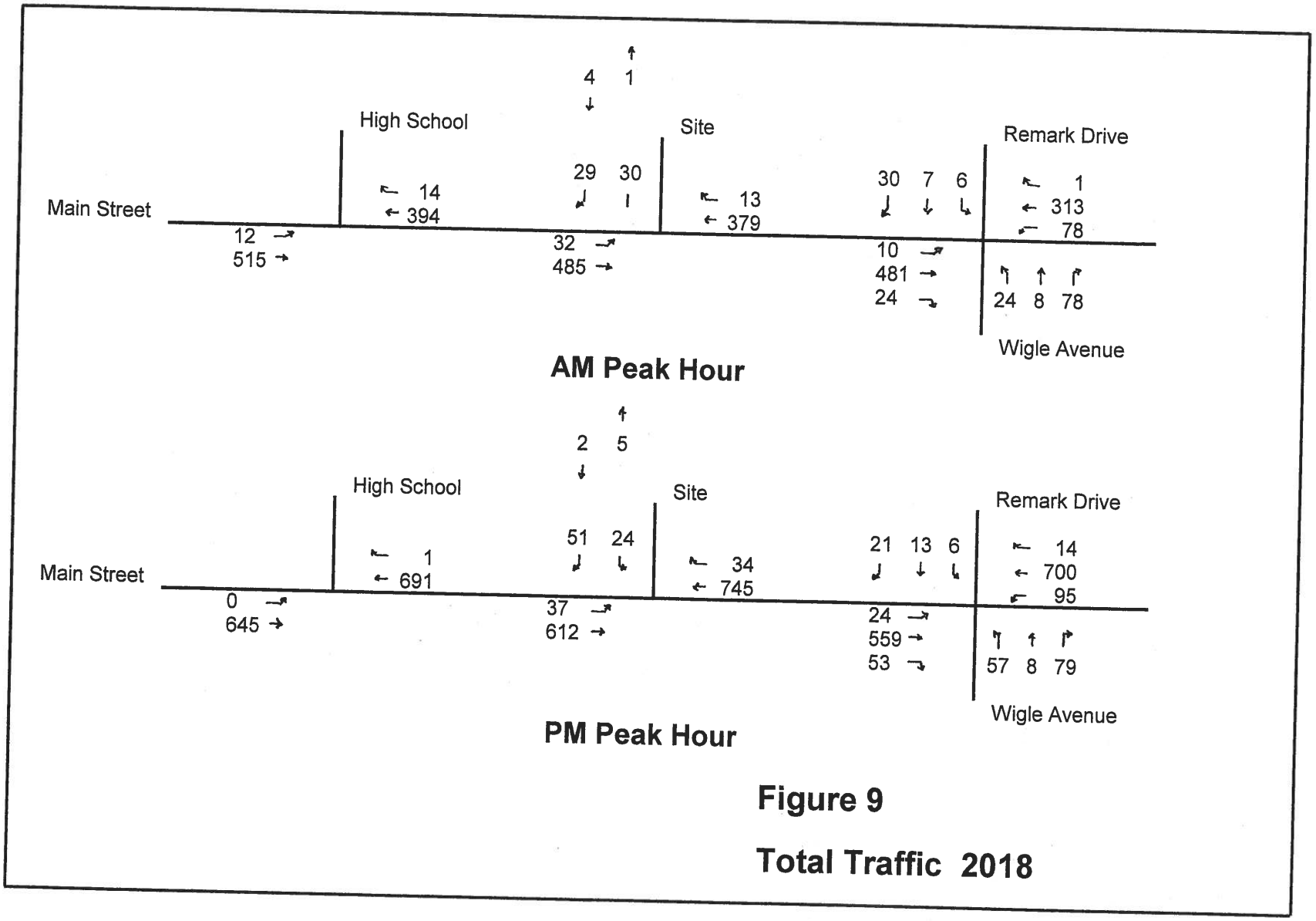
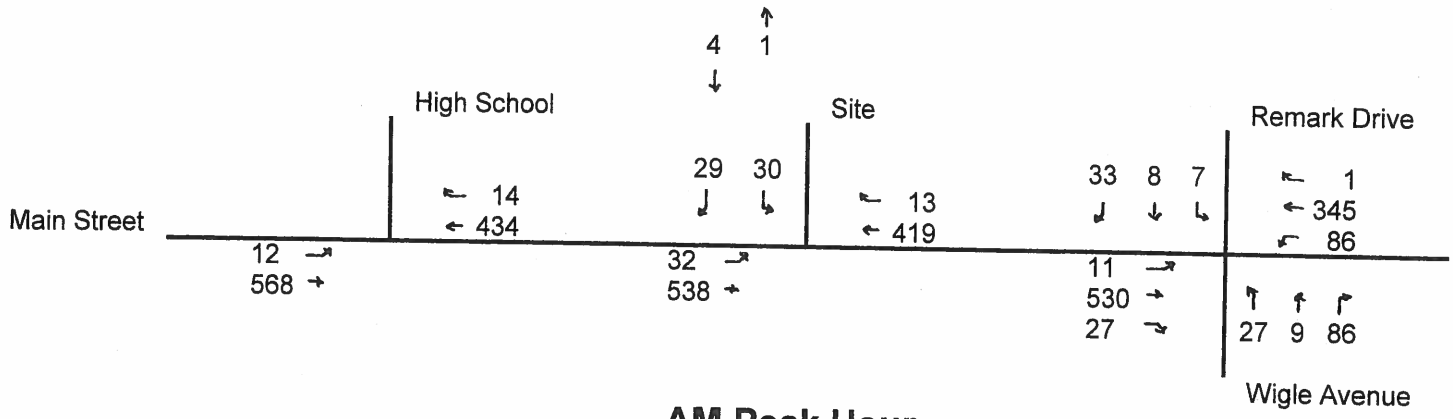
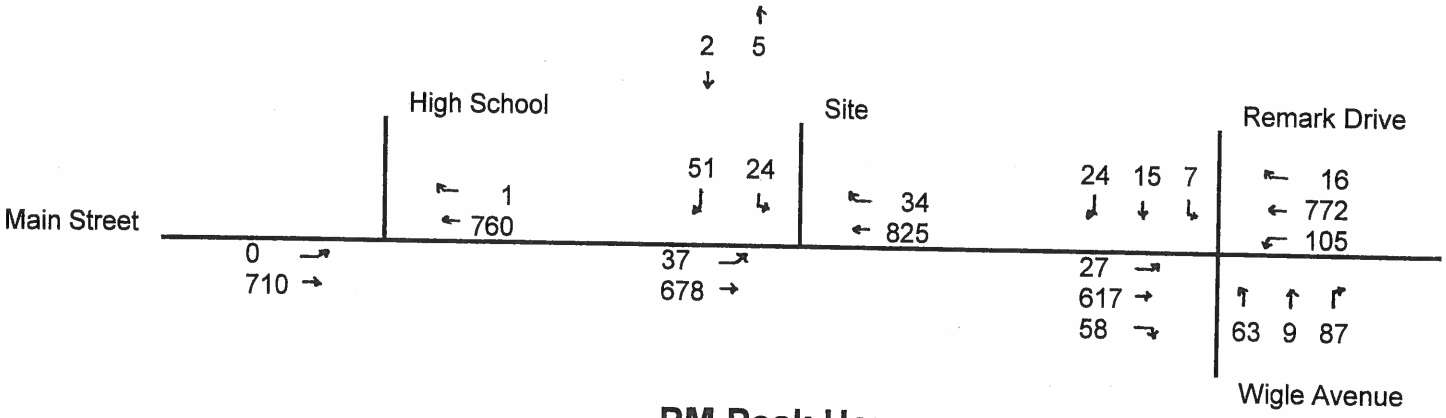


Figure 9

Total Traffic 2018



AM Peak Hour



PM Peak Hour

Figure 10

Total Traffic 2023

APPENDIX A

TRAFFIC COUNTS

Main St E @ Kingsville Highschool

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Kingsville
Site #: 0000000001
Intersection: Main St E & Highschool
TFR File #: 1
Count date: 28-Mar-2017

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Rick

**** Non-Signalized Intersection ****

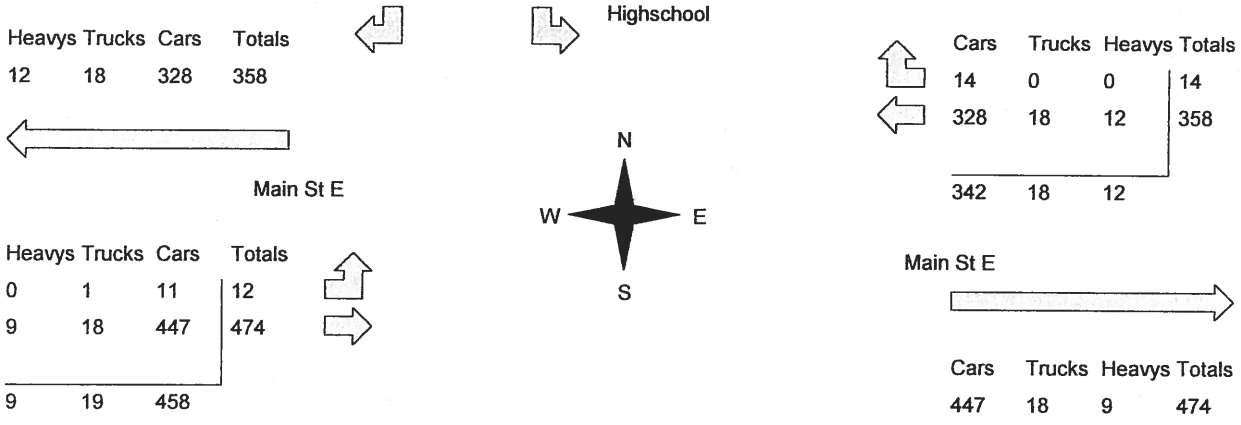
Major Road: Main St E runs W/E

North Leg Total: 26
North Entering: 0
North Peds: 15
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	0	0	0
Totals	0	0	

Heavys	0
Trucks	1
Cars	25
Totals	26

East Leg Total: 846
East Entering: 372
East Peds: 4
Peds Cross: ⋈



Peds Cross: ⋈
West Peds: 1
West Entering: 486
West Leg Total: 844

Comments

Main St E @ Kingsville Highschool

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

Municipality: Kingsville
Site #: 0000000001
Intersection: Main St E & Highschool
TFR File #: 1
Count date: 28-Mar-2017

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Rick

**** Non-Signalized Intersection ****

Major Road: Main St E runs W/E

North Leg Total: 9
North Entering: 0
North Peds: 9
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	0	0	0
Totals	0	0	

Heavys	1
Trucks	1
Cars	7
Totals	9

East Leg Total: 1043
East Entering: 522
East Peds: 0
Peds Cross: ⋈

Highschool

Heavys	Trucks	Cars	Totals
4	11	504	519

	Cars	Trucks	Heavys	Totals
	1	1	1	3
	504	11	4	519
	505	12	5	

Main St E

Heavys	Trucks	Cars	Totals
0	0	6	6
8	11	502	521
8	11	508	

Main St E

	Cars	Trucks	Heavys	Totals
	502	11	8	521

Peds Cross: ⋈
West Peds: 0
West Entering: 527
West Leg Total: 1046

Comments

Main St E @ Kingsville Highschool

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:00:00
To: 17:00:00

Municipality: Kingsville
Site #: 0000000001
Intersection: Main St E & Highschool
TFR File #: 1
Count date: 28-Mar-2017

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Rick

**** Non-Signalized Intersection ****

Major Road: Main St E runs W/E

North Leg Total: 1
North Entering: 0
North Peds: 16
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	0	0	0
Totals	0	0	

Heavys	0
Trucks	0
Cars	1
Totals	1

East Leg Total: 1224
East Entering: 628
East Peds: 1
Peds Cross: ⧖

Highschool

Heavys	Trucks	Cars	Totals
2	3	622	627

Main St E

Heavys	Trucks	Cars	Totals
0	0	0	0
4	9	583	596
4	9	583	

Cars	Trucks	Heavys	Totals
1	0	0	1
622	3	2	627
623	3	2	

Main St E

Cars	Trucks	Heavys	Totals
583	9	4	596

Peds Cross: ⧖
West Peds: 0
West Entering: 596
West Leg Total: 1223

Comments

Main St E @ Kingsville Highschool

Total Count Diagram

Municipality: Kingsville
Site #: 0000000001
Intersection: Main St E & Highschool
TFR File #: 1
Count date: 28-Mar-2017

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Rick

**** Non-Signalized Intersection ****

Major Road: Main St E runs W/E

North Leg Total: 90
North Entering: 0
North Peds: 84
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	0	0	0
Totals	0	0	

Heavys	11
Trucks	6
Cars	73
Totals	90

East Leg Total: 7886
East Entering: 3847
East Peds: 12
Peds Cross: ⋈

Heavys	Trucks	Cars	Totals
40	72	3692	3804

Highschool

Cars	Trucks	Heavys	Totals
35	3	5	43
3692	72	40	3804
3727	75	45	

Main St E

N
W E
S

Heavys	Trucks	Cars	Totals
6	3	38	47
49	84	3906	4039
55	87	3944	

Main St E

Cars	Trucks	Heavys	Totals
3906	84	49	4039

Peds Cross: ⋈
West Peds: 8
West Entering: 4086
West Leg Total: 7890

Comments

Main St E @ Kingsville Highschool

Municipality: Kingsville
Major Road: Main St E
Minor Road: Highschool

Date: Mar 28, 2017

Major Road Runs: East/West
Weather Conditions: Cloudy/Dry
Person No. 1 Rick
Person No. 2

Period Ending	North Approach							East Approach							South Approach							West Approach							Veh. Summary	
	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.		
	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	15	60
7:15	0	0	0	0	0	0	0	0	56	2	0	1	0	0	0	0	0	0	0	0	1	2	56	0	0	2	0	0	119	
7:30	0	0	0	0	0	0	1	0	51	0	0	5	0	0	0	0	0	0	0	0	0	2	78	0	0	3	0	0	139	
7:45	0	0	0	0	0	0	0	0	61	0	0	2	0	0	0	0	0	0	0	0	1	0	110	0	1	4	0	0	178	
8:00	0	0	0	0	0	0	2	0	78	4	0	8	5	0	0	0	0	0	0	0	1	1	122	0	6	5	0	0	229	665
8:15	0	0	0	0	0	0	1	0	87	11	0	6	0	1	0	0	0	0	0	0	0	5	128	0	1	8	0	1	246	792
8:30	0	0	0	0	0	0	3	0	62	1	0	5	0	0	0	0	0	0	0	0	2	5	96	0	0	6	0	0	175	828
8:45	0	0	0	0	0	0	4	0	85	2	0	7	0	2	0	0	0	0	0	0	2	0	95	0	0	4	0	0	193	843
9:00	0	0	0	0	0	0	7	0	94	0	0	12	0	1	0	0	0	0	0	0	8	1	128	0	0	9	0	0	244	858
11:15	0	0	0	0	0	0	0	0	104	3	0	2	0	0	0	0	0	0	0	0	8	1	131	0	0	4	0	4	245	
11:30	0	0	0	0	0	0	4	0	127	1	0	4	0	0	0	0	0	0	0	0	2	2	114	0	1	4	0	0	253	
11:45	0	0	0	0	0	0	3	0	107	2	0	5	0	6	0	0	0	0	0	0	6	4	124	0	0	3	0	1	245	
12:00	0	0	0	0	0	0	0	0	106	1	0	4	0	0	0	0	0	0	0	0	1	2	133	0	0	5	0	0	251	994
12:15	0	0	0	0	0	0	7	0	137	0	0	3	2	0	0	0	0	0	0	0	1	0	109	0	0	6	0	0	257	1006
12:30	0	0	0	0	0	0	2	0	122	0	0	4	0	0	0	0	0	0	0	0	1	3	132	0	0	4	0	0	265	1018
12:45	0	0	0	0	0	0	0	0	139	0	0	4	0	0	0	0	0	0	0	0	3	1	128	0	0	4	0	0	276	1049
13:00	0	0	0	0	0	0	0	0	110	1	0	5	0	0	0	0	0	0	0	0	0	2	115	0	0	5	0	0	238	1036
13:15	0	0	0	0	0	0	1	0	109	1	0	5	0	0	0	0	0	0	0	0	2	2	115	0	0	3	0	0	235	1014
13:30	0	0	0	0	0	0	1	0	113	0	0	5	0	0	0	0	0	0	0	0	4	0	115	0	0	3	0	0	236	985
13:45	0	0	0	0	0	0	1	0	121	0	0	4	1	0	0	0	0	0	0	0	0	0	113	0	0	4	0	0	243	952
14:00	0	0	0	0	0	0	3	0	115	0	0	2	0	0	0	0	0	0	0	0	3	1	142	0	0	5	0	1	265	979
15:15	0	0	0	0	0	0	2	0	123	0	0	2	0	0	0	0	0	0	0	0	3	0	117	0	0	3	0	0	245	
15:30	0	0	0	0	0	0	4	0	151	0	0	3	0	0	0	0	0	0	0	0	4	1	93	0	0	2	0	0	250	
15:45	0	0	0	0	0	0	3	0	121	1	0	3	0	0	0	0	0	0	0	0	7	2	149	0	0	4	0	0	280	
16:00	0	0	0	0	0	0	7	0	122	0	0	3	0	0	0	0	0	0	0	0	7	0	138	0	0	8	0	0	271	1046
16:15	0	0	0	0	0	0	5	0	152	1	0	1	0	1	0	0	0	0	0	0	4	0	154	0	0	0	0	0	308	1109
16:30	0	0	0	0	0	0	4	0	137	0	0	1	0	0	0	0	0	0	0	0	2	0	161	0	0	9	0	0	308	1167
16:45	0	0	0	0	0	0	1	0	168	0	0	0	0	0	0	0	0	0	0	0	1	0	122	0	0	1	0	0	291	1178
17:00	0	0	0	0	0	0	6	0	165	0	0	3	0	0	0	0	0	0	0	0	4	0	146	0	0	3	0	0	317	1224
17:15	0	0	0	0	0	0	3	0	136	0	0	1	0	0	0	0	0	0	0	0	3	1	136	0	0	2	0	1	276	1192
17:30	0	0	0	0	0	0	0	0	175	1	0	1	0	0	0	0	0	0	0	0	2	0	132	0	0	2	0	0	311	1195
17:45	0	0	0	0	0	0	4	0	136	2	0	1	0	0	0	0	0	0	0	0	3	0	147	0	0	6	0	0	292	1196
18:00	0	0	0	0	0	0	5	0	122	1	0	0	0	1	0	0	0	0	0	0	6	0	127	0	0	2	0	0	252	1131

Main St E @ Remark Dr / Wigle Ave

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:30:00
To: 8:30:00

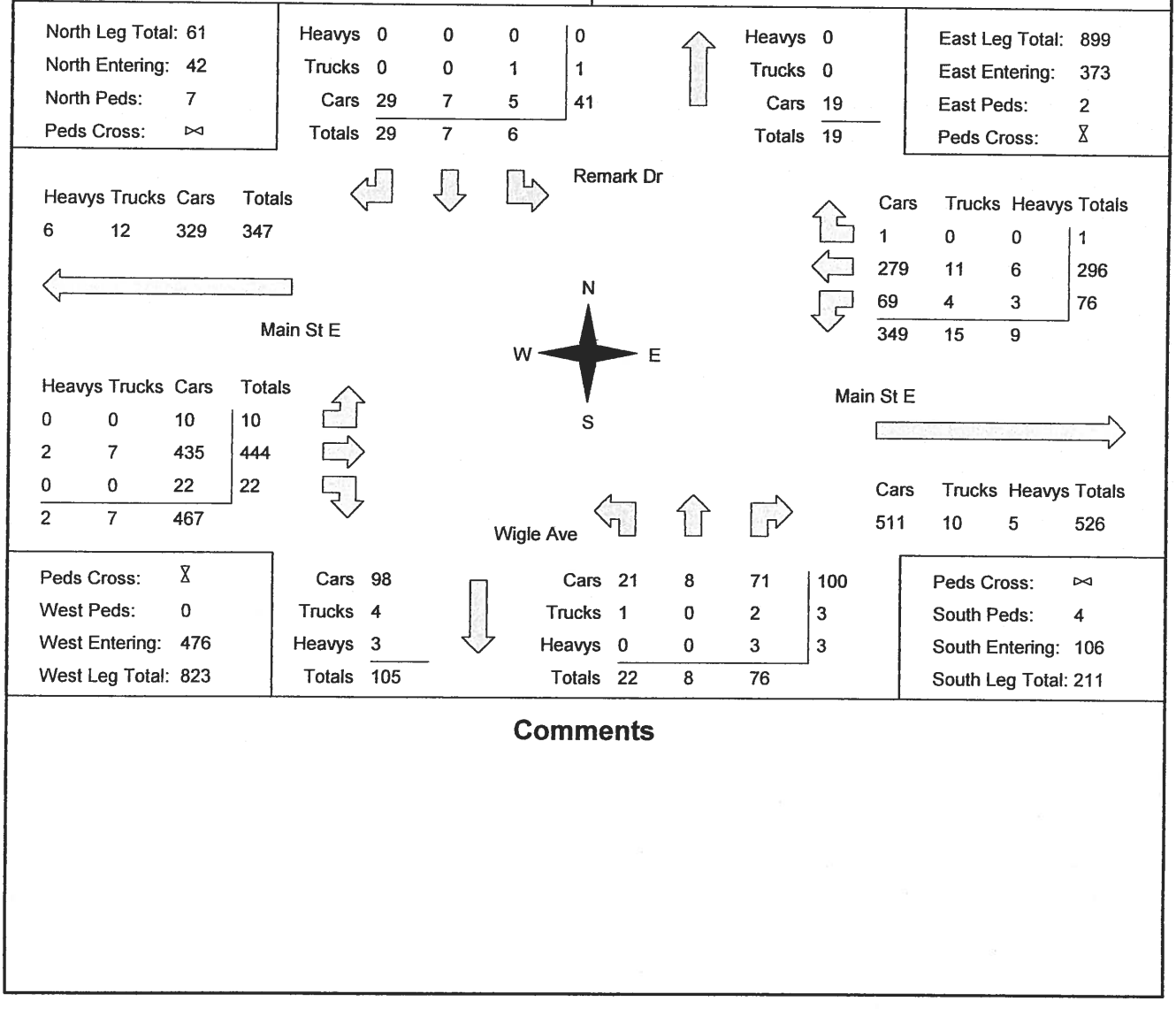
Municipality: Kingsville
Site #: 0000000002
Intersection: Main St E & Remark Dr
TFR File #: 3
Count date: 23-Mar-2016

Weather conditions:
Clear/Dry

Person(s) who counted:
Diane

**** Signalized Intersection ****

Major Road: Main St E runs W/E



Comments

Main St E @ Remark Dr / Wigle Ave

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

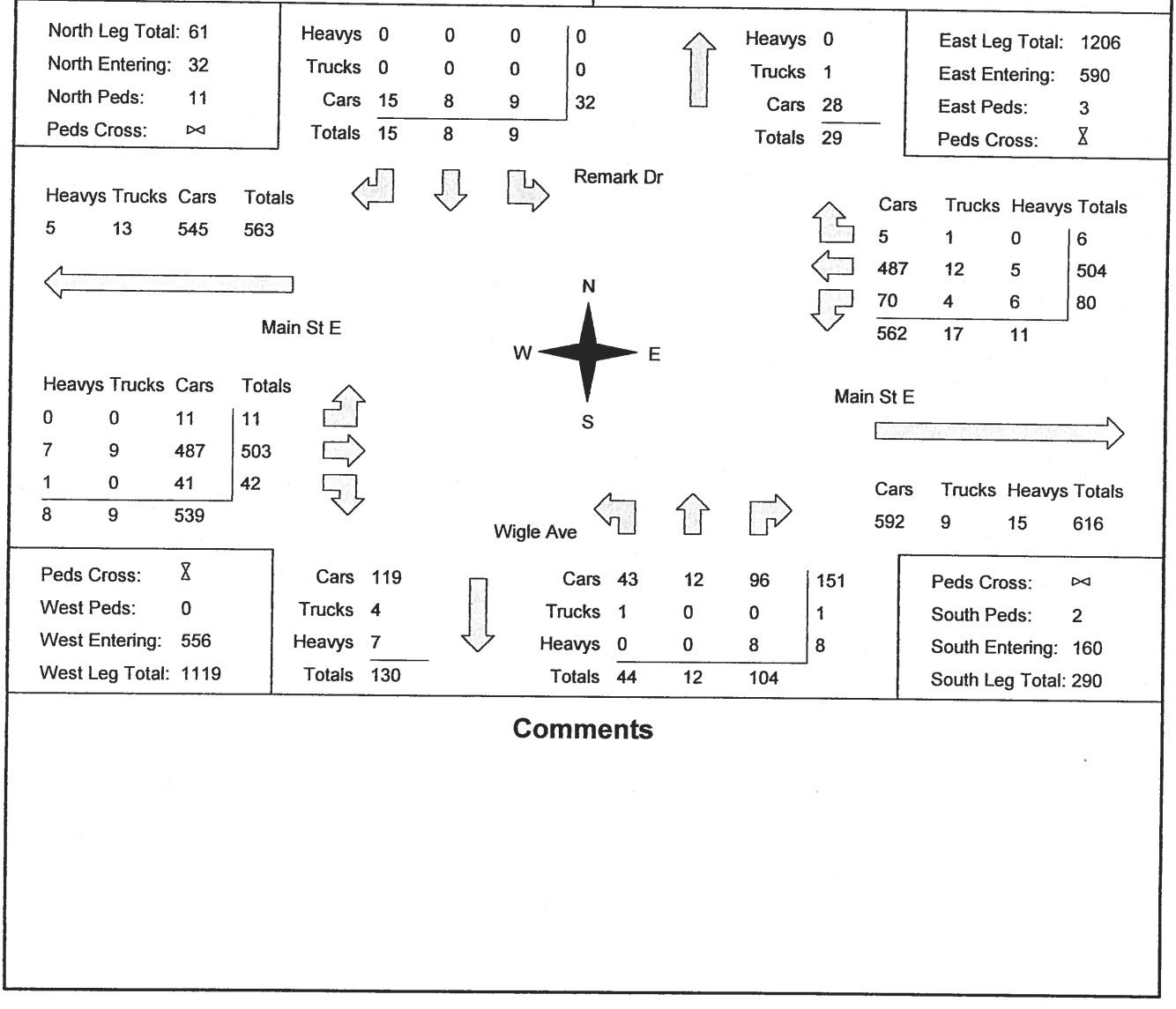
Municipality: Kingsville
Site #: 0000000002
Intersection: Main St E & Remark Dr
TFR File #: 3
Count date: 23-Mar-2016

Weather conditions:
Clear/Dry

Person(s) who counted:
Diane

**** Signalized Intersection ****

Major Road: Main St E runs W/E



Comments

Main St E @ Remark Dr / Wigle Ave

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 17:00:00
To: 18:00:00

Municipality: Kingsville
Site #: 0000000002
Intersection: Main St E & Remark Dr
TFR File #: 3
Count date: 23-Mar-2016

Weather conditions:
Clear/Dry

Person(s) who counted:
Diane

**** Signalized Intersection ****

Major Road: Main St E runs W/E

North Leg Total: 86
North Entering: 40
North Peds: 4
Peds Cross: ⋈

Heavys	0	0	0	0
Trucks	1	0	0	1
Cars	20	13	6	39
Totals	21	13	6	

Heavys	0
Trucks	0
Cars	46
Totals	46

East Leg Total: 1374
East Entering: 764
East Peds: 2
Peds Cross: ⋈

Heavys	Trucks	Cars	Totals
0	2	728	730

Remark Dr

Cars	Trucks	Heavys	Totals
14	0	0	14
656	1	0	657
93	0	0	93
763	1	0	

Main St E

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	24	24
0	6	521	527
0	0	49	49
0	6	594	

Main St E

Cars	Trucks	Heavys	Totals
602	7	1	610

Wigle Ave

Peds Cross: ⋈
West Peds: 2
West Entering: 600
West Leg Total: 1330

Cars	155
Trucks	0
Heavys	0
Totals	155

Cars	52	8	75	135
Trucks	0	0	1	1
Heavys	0	0	1	1
Totals	52	8	77	

Peds Cross: ⋈
South Peds: 5
South Entering: 137
South Leg Total: 292

Comments

Main St E @ Remark Dr / Wigle Ave

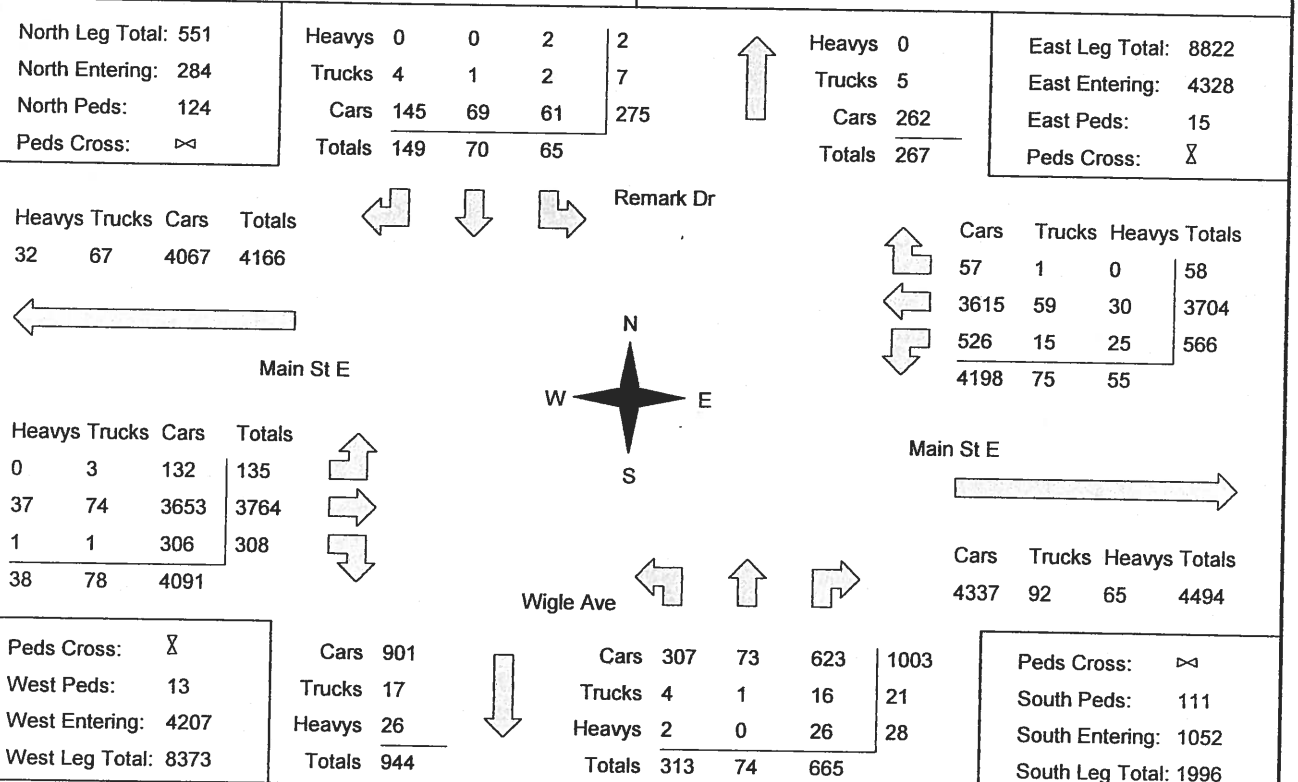
Total Count Diagram

Municipality: Kingsville
Site #: 0000000002
Intersection: Main St E & Remark Dr
TFR File #: 3
Count date: 23-Mar-2016

Weather conditions: Clear/Dry
Person(s) who counted: Diane

**** Signalized Intersection ****

Major Road: Main St E runs W/E



Comments

Main St E @ Remark Dr / Wigle Ave

Municipality: Kingsville
Major Road: Main St E
Minor Road: Remark Dr

Date: Mar 23, 2016

Major Road Runs: East/West
Weather Conditions: Clear/Dry
Person No. 1 Diane
Person No. 2

Period Ending	North Approach							East Approach							South Approach							West Approach							Veh. Summary	
	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.		
	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	15	60
7:15	2	1	2	0	0	0	0	5	36	0	1	2	0	0	0	0	11	0	0	0	0	0	61	1	0	1	0	0	123	
7:30	1	1	1	1	0	0	3	18	48	0	2	3	0	0	6	0	17	0	0	0	0	1	71	3	1	2	0	0	176	
7:45	1	2	3	0	0	0	0	28	64	0	3	4	0	0	3	1	22	0	0	2	0	0	107	6	0	2	0	0	248	
8:00	2	3	7	0	0	0	2	12	66	0	1	5	0	0	7	0	16	1	0	0	0	4	110	7	0	2	0	0	243	790
8:15	1	2	12	0	0	0	2	16	84	1	1	4	0	2	9	7	18	0	0	1	4	4	128	5	0	5	0	0	298	965
8:30	1	0	7	1	0	0	3	13	65	0	2	4	0	0	2	0	15	0	0	2	0	2	90	4	0	0	0	0	208	997
8:45	1	1	3	0	0	0	0	7	63	2	0	2	0	0	5	2	17	1	0	1	1	3	76	8	0	2	0	0	194	943
9:00	2	1	8	0	0	1	4	13	71	2	2	5	0	0	9	2	18	1	0	0	1	1	128	10	0	5	0	3	279	979
11:15	3	2	3	0	0	1	42	15	114	2	2	3	0	3	10	0	20	0	0	0	18	2	140	12	0	6	0	3	335	
11:30	4	0	5	0	0	0	22	10	114	2	2	6	0	1	16	1	15	1	0	1	35	1	92	5	1	7	1	0	284	
11:45	1	0	3	0	0	0	3	22	113	2	0	3	0	0	11	2	28	0	0	3	6	7	114	7	0	8	0	0	324	
12:00	4	3	3	0	0	0	1	14	107	3	1	3	0	1	13	1	13	0	0	1	0	4	108	11	0	3	0	1	292	1235
12:15	1	2	6	0	0	0	0	21	126	1	1	7	0	0	12	7	27	0	0	0	0	3	124	8	0	6	0	0	352	1252
12:30	2	1	3	0	0	0	5	20	120	1	3	7	1	2	15	0	27	0	0	1	1	4	133	12	0	2	0	0	352	1320
12:45	2	3	3	0	0	0	5	14	110	3	3	2	0	1	6	2	26	1	0	4	1	3	107	9	0	6	0	0	304	1300
13:00	4	2	3	0	0	0	1	15	131	0	3	1	0	0	10	3	16	0	0	3	0	1	123	12	0	2	1	0	330	1338
13:15	1	5	3	1	0	1	4	22	111	3	0	2	0	1	4	3	21	0	0	2	0	6	127	12	0	4	0	0	328	1314
13:30	2	3	5	0	0	0	0	8	117	1	1	2	0	0	8	1	17	0	0	2	3	4	111	10	0	4	0	0	296	1258
13:45	2	3	2	0	0	0	0	9	100	1	3	0	0	0	10	5	16	0	0	2	0	8	119	12	0	3	0	0	295	1249
14:00	2	3	3	0	0	0	0	17	97	2	2	2	0	0	10	2	13	0	0	3	3	1	111	10	0	4	0	1	282	1201
15:15	1	1	4	0	0	0	3	15	132	2	2	2	0	1	9	2	21	0	0	3	6	5	117	15	0	7	0	0	338	
15:30	0	5	7	0	0	0	3	19	143	4	2	4	0	0	17	5	27	1	0	2	0	4	112	13	0	1	0	0	366	
15:45	2	0	8	0	0	0	4	9	137	1	1	4	0	0	8	3	26	0	0	1	3	9	119	11	0	5	0	0	344	
16:00	2	2	10	0	0	0	4	14	136	1	1	3	0	0	11	5	13	0	1	3	7	5	137	15	1	5	0	1	365	1413
16:15	2	4	1	0	0	0	2	15	151	4	0	0	0	0	13	2	18	0	0	0	4	4	128	10	0	1	0	0	353	1428
16:30	5	2	2	1	1	0	1	19	150	1	1	6	0	1	14	4	20	0	0	2	9	9	119	11	0	6	0	2	373	1435
16:45	1	3	3	0	0	0	4	16	113	1	0	1	0	0	8	4	30	0	0	0	2	8	98	5	0	3	0	0	294	1385
17:00	3	1	5	0	0	0	2	27	140	3	0	1	0	0	9	1	20	0	0	1	2	5	122	13	0	3	0	0	354	1374
17:15	0	4	4	0	0	0	0	21	167	4	0	0	0	0	14	0	25	0	0	1	2	4	143	14	0	2	0	0	403	1424
17:30	2	3	8	0	0	1	2	24	168	3	0	0	0	0	14	3	21	0	0	1	1	2	137	12	0	0	0	0	399	1450
17:45	2	2	3	0	0	0	1	23	170	2	0	0	0	2	10	3	18	0	0	0	0	7	132	10	0	0	0	0	382	1538
18:00	2	4	5	0	0	0	1	25	151	5	0	1	0	0	14	2	11	0	0	0	2	11	109	13	0	4	0	2	357	1541

APPENDIX B

LEVEL OF SERVICE ANALYSIS

MAIN STREET AND SITE ACCESS

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	32	485	379	13	30	29
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	527	412	14	33	32
Pedestrians					15	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.2	
Percent Blockage					1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	441				1031	434
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	441				1031	434
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				87	95
cM capacity (veh/h)	1115				249	618

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	35	527	426	64
Volume Left	35	0	0	33
Volume Right	0	0	14	32
cSH	1115	1700	1700	353
Volume to Capacity	0.03	0.31	0.25	0.18
Queue Length 95th (m)	0.7	0.0	0.0	5.0
Control Delay (s)	8.3	0.0	0.0	17.5
Lane LOS	A			C
Approach Delay (s)	0.5		0.0	17.5
Approach LOS				C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	32	538	419	13	30	29
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	585	455	14	33	32
Pedestrians					15	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.2	
Percent Blockage					1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	485				1132	478
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	485				1132	478
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				85	95
cM capacity (veh/h)	1075				217	584

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	35	585	470	64
Volume Left	35	0	0	33
Volume Right	0	0	14	32
cSH	1075	1700	1700	314
Volume to Capacity	0.03	0.34	0.28	0.20
Queue Length 95th (m)	0.8	0.0	0.0	5.7
Control Delay (s)	8.5	0.0	0.0	19.4
Lane LOS	A			C
Approach Delay (s)	0.5		0.0	19.4
Approach LOS				C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	37	612	745	34	24	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	665	810	37	26	55
Pedestrians					16	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.2	
Percent Blockage					1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	863				1590	844
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	863				1590	844
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				77	85
cM capacity (veh/h)	777				112	361

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	40	665	847	82
Volume Left	40	0	0	26
Volume Right	0	0	37	55
cSH	777	1700	1700	211
Volume to Capacity	0.05	0.39	0.50	0.39
Queue Length 95th (m)	1.2	0.0	0.0	13.0
Control Delay (s)	9.9	0.0	0.0	32.4
Lane LOS	A			D
Approach Delay (s)	0.6		0.0	32.4
Approach LOS				D

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	37	678	825	34	24	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	737	897	37	26	55
Pedestrians					16	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.2	
Percent Blockage					1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	950				1749	931
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	950				1749	931
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				71	83
cM capacity (veh/h)	721				89	322

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	40	737	934	82
Volume Left	40	0	0	26
Volume Right	0	0	37	55
cSH	721	1700	1700	175
Volume to Capacity	0.06	0.43	0.55	0.47
Queue Length 95th (m)	1.3	0.0	0.0	16.7
Control Delay (s)	10.3	0.0	0.0	42.3
Lane LOS	B			E
Approach Delay (s)	0.5		0.0	42.3
Approach LOS				E

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

MAIN STREET AND WIGLE AVE./REMARK DR.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1775	1650	1650	1775	1650	1650	1550	1550	1550	1550	1550	1550
Storage Length (m)	15.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00			0.98			1.00	
Frt		0.993						0.903			0.908	
Flt Protected	0.950			0.950				0.990			0.993	
Satd. Flow (prot)	1705	1623	0	1564	1574	0	0	1298	0	0	1378	0
Flt Permitted	0.511			0.353				0.941			0.960	
Satd. Flow (perm)	909	1623	0	579	1574	0	0	1234	0	0	1332	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5						83			32	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		798.2			519.5			404.3			410.4	
Travel Time (s)		59.9			39.0			30.3			30.8	
Volume (vph)	10	444	22	76	296	1	22	8	76	6	7	29
Confl. Peds. (#/hr)	7		4	4		7			2	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	9%	6%	0%	5%	0%	7%	17%	0%	0%
Adj. Flow (vph)	11	483	24	83	322	1	24	9	83	7	8	32
Lane Group Flow (vph)	11	507	0	83	323	0	0	116	0	0	47	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	7	4		3	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	22.0		8.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	8.0	40.0	0.0	8.0	40.0	0.0	22.0	22.0	0.0	22.0	22.0	0.0
Total Split (%)	11.4%	57.1%	0.0%	11.4%	57.1%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	4.0	34.0		4.0	34.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	25.4	23.3		27.0	26.2			19.0			19.0	
Actuated g/C Ratio	0.42	0.43		0.47	0.48			0.35			0.35	
v/c Ratio	0.03	0.73		0.24	0.43			0.24			0.10	
Control Delay	6.7	16.0		8.1	10.2			9.6			10.7	

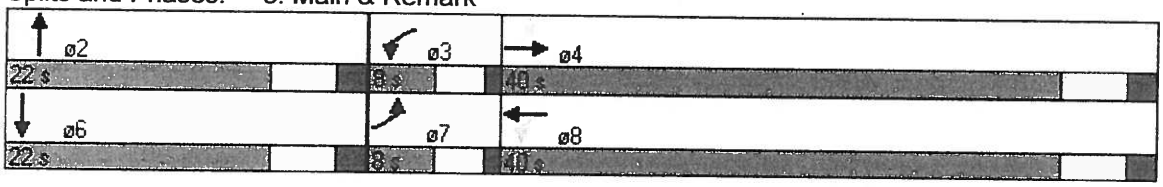
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.7	16.0		8.1	10.2			9.6			10.7	
LOS	A	B		A	B			A			B	
Approach Delay		15.8			9.8			9.6			10.7	
Approach LOS		B			A			A			B	
Queue Length 50th (m)	0.5	43.1		3.7	17.2			2.5			1.1	
Queue Length 95th (m)	2.0	71.4		8.1	41.2			14.9			8.6	
Internal Link Dist (m)		774.2			495.5			380.3			386.4	
Turn Bay Length (m)	15.0			30.0								
Base Capacity (vph)	432	880		339	896			481			482	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.03	0.58		0.24	0.36			0.24			0.10	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 54.8
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 12.7
Intersection Capacity Utilization 56.3%
Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service B

Splits and Phases: 3: Main & Remark



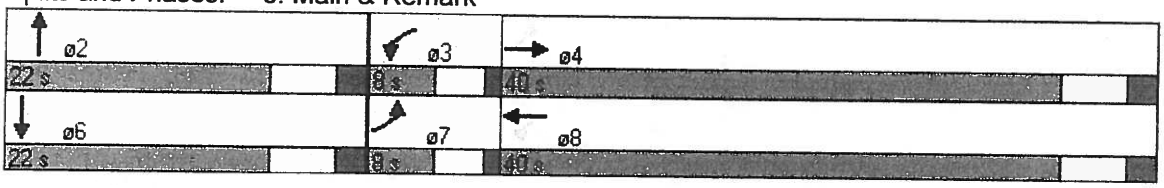
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1775	1650	1650	1775	1650	1650	1550	1550	1550	1550	1550	1550
Storage Length (m)	15.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00			0.98			1.00	
Frt		0.993						0.903			0.907	
Flt Protected	0.950			0.950				0.990			0.993	
Satd. Flow (prot)	1705	1623	0	1564	1574	0	0	1292	0	0	1377	0
Flt Permitted	0.506			0.346				0.942			0.960	
Satd. Flow (perm)	897	1623	0	568	1574	0	0	1229	0	0	1330	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5						85			33	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		798.2			519.5			404.3			410.4	
Travel Time (s)		59.9			39.0			30.3			30.8	
Volume (vph)	10	453	22	78	302	1	22	8	78	6	7	30
Confl. Peds. (#/hr)	10		5	5		10			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	9%	6%	0%	5%	0%	7%	17%	0%	0%
Adj. Flow (vph)	11	492	24	85	328	1	24	9	85	7	8	33
Lane Group Flow (vph)	11	516	0	85	329	0	0	118	0	0	48	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	7	4		3	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	22.0		8.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	8.0	40.0	0.0	8.0	40.0	0.0	22.0	22.0	0.0	22.0	22.0	0.0
Total Split (%)	11.4%	57.1%	0.0%	11.4%	57.1%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	4.0	34.0		4.0	34.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	25.7	23.6		27.3	26.4			19.0			19.0	
Actuated g/C Ratio	0.42	0.43		0.47	0.48			0.34			0.34	
v/c Ratio	0.03	0.74		0.25	0.44			0.25			0.10	
Control Delay	6.7	16.1		8.1	10.3			9.6			10.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.7	16.1		8.1	10.3			9.6			10.7	
LOS	A	B		A	B			A			B	
Approach Delay		15.9			9.9			9.6			10.7	
Approach LOS		B			A			A			B	
Queue Length 50th (m)	0.5	44.1		3.8	17.5			2.5			1.1	
Queue Length 95th (m)	2.0	73.2		8.3	42.0			14.9			8.7	
Internal Link Dist (m)		774.2			495.5			380.3			386.4	
Turn Bay Length (m)	15.0			30.0								
Base Capacity (vph)	429	880		335	897			479			479	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.03	0.59		0.25	0.37			0.25			0.10	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 55.1
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 12.8
Intersection LOS: B
Intersection Capacity Utilization 57.0%
ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Main & Remark



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1775	1650	1650	1775	1650	1650	1550	1550	1550	1550	1550	1550
Storage Length (m)	15.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00			0.98			1.00	
Frt		0.993						0.904			0.907	
Flt Protected	0.950			0.950				0.989			0.993	
Satd. Flow (prot)	1705	1623	0	1564	1574	0	0	1293	0	0	1377	0
Flt Permitted	0.495			0.320				0.937			0.960	
Satd. Flow (perm)	878	1623	0	525	1574	0	0	1225	0	0	1330	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5						85			33	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		798.2			519.5			404.3			410.4	
Travel Time (s)		59.9			39.0			30.3			30.8	
Volume (vph)	10	481	24	78	313	1	24	8	78	6	7	30
Confl. Peds. (#/hr)	10		5	5		10			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	9%	6%	0%	5%	0%	7%	17%	0%	0%
Adj. Flow (vph)	11	523	26	85	340	1	26	9	85	7	8	33
Lane Group Flow (vph)	11	549	0	85	341	0	0	120	0	0	48	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	7	4		3	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	22.0		8.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	8.0	40.0	0.0	8.0	40.0	0.0	22.0	22.0	0.0	22.0	22.0	0.0
Total Split (%)	11.4%	57.1%	0.0%	11.4%	57.1%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	4.0	34.0		4.0	34.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	27.0	24.9		28.5	27.7			19.0			19.0	
Actuated g/C Ratio	0.43	0.44		0.48	0.49			0.34			0.34	
v/c Ratio	0.03	0.76		0.26	0.44			0.26			0.10	
Control Delay	6.5	16.8		8.2	10.3			10.1			11.0	

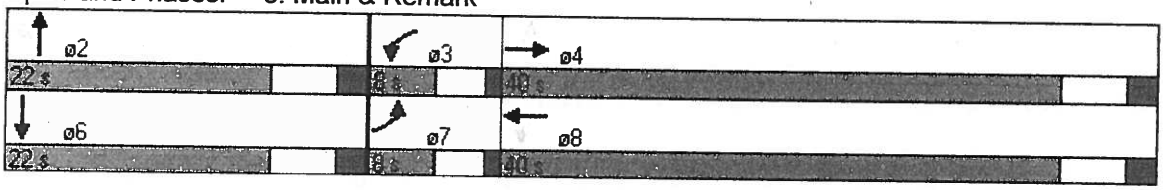
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.5	16.8		8.2	10.3			10.1			11.0	
LOS	A	B		A	B			B			B	
Approach Delay		16.6			9.9			10.1			11.0	
Approach LOS		B			A			B			B	
Queue Length 50th (m)	0.5	48.6		3.8	18.4			2.8			1.2	
Queue Length 95th (m)	2.0	80.4		8.3	43.7			15.3			8.7	
Internal Link Dist (m)		774.2			495.5			380.3			386.4	
Turn Bay Length (m)	15.0			30.0								
Base Capacity (vph)	432	880		322	903			468			469	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.03	0.62		0.26	0.38			0.26			0.10	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 56.4
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 13.2
Intersection Capacity Utilization 58.8%
Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service B

Splits and Phases: 3: Main & Remark



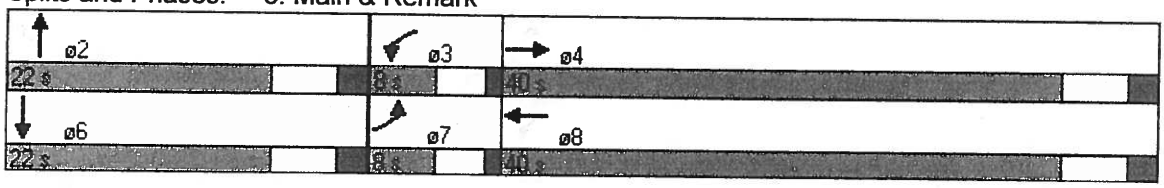
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1775	1650	1650	1775	1650	1650	1550	1550	1550	1550	1550	1550
Storage Length (m)	15.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00			0.98			1.00	
Frt		0.993						0.903			0.908	
Flt Protected	0.950			0.950				0.990			0.993	
Satd. Flow (prot)	1705	1623	0	1564	1574	0	0	1292	0	0	1378	0
Flt Permitted	0.474			0.301				0.938			0.956	
Satd. Flow (perm)	841	1623	0	494	1574	0	0	1224	0	0	1325	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5						93			36	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		798.2			519.5			404.3			410.4	
Travel Time (s)		59.9			39.0			30.3			30.8	
Volume (vph)	11	502	25	86	334	1	25	9	86	7	8	33
Confl. Peds. (#/hr)	10		5	5		10			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	9%	6%	0%	5%	0%	7%	17%	0%	0%
Adj. Flow (vph)	12	546	27	93	363	1	27	10	93	8	9	36
Lane Group Flow (vph)	12	573	0	93	364	0	0	130	0	0	53	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	7	4		3	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	22.0		8.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	8.0	40.0	0.0	8.0	40.0	0.0	22.0	22.0	0.0	22.0	22.0	0.0
Total Split (%)	11.4%	57.1%	0.0%	11.4%	57.1%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	4.0	34.0		4.0	34.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	29.6	26.6		32.0	31.1			18.8			18.8	
Actuated g/C Ratio	0.45	0.45		0.52	0.52			0.32			0.32	
v/c Ratio	0.03	0.79		0.28	0.44			0.29			0.12	
Control Delay	6.5	18.3		7.8	10.2			10.2			11.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.5	18.3		7.8	10.2			10.2			11.0	
LOS	A	B		A	B			B			B	
Approach Delay		18.1			9.7			10.2			11.0	
Approach LOS		B			A			B			B	
Queue Length 50th (m)	0.5	51.8		4.2	20.0			3.1			1.4	
Queue Length 95th (m)	2.1	85.9		8.9	47.3			16.2			9.3	
Internal Link Dist (m)		774.2			495.5			380.3			386.4	
Turn Bay Length (m)	15.0			30.0								
Base Capacity (vph)	431	858		329	907			449			442	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.03	0.67		0.28	0.40			0.29			0.12	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 59.6
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 13.8
Intersection LOS: B
Intersection Capacity Utilization 61.0%
ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Main & Remark



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1775	1650	1650	1775	1650	1650	1550	1550	1550	1550	1550	1550
Storage Length (m)	15.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00			0.98			1.00	
Frt		0.993						0.905			0.908	
Flt Protected	0.950			0.950				0.989			0.993	
Satd. Flow (prot)	1705	1623	0	1564	1574	0	0	1294	0	0	1378	0
Flt Permitted	0.464			0.276				0.933			0.956	
Satd. Flow (perm)	824	1623	0	453	1574	0	0	1221	0	0	1325	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5						93			36	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		798.2			519.5			404.3			410.4	
Travel Time (s)		59.9			39.0			30.3			30.8	
Volume (vph)	11	530	27	86	345	1	27	9	86	7	8	33
Confl. Peds. (#/hr)	10		5	5		10			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	9%	6%	0%	5%	0%	7%	17%	0%	0%
Adj. Flow (vph)	12	576	29	93	375	1	29	10	93	8	9	36
Lane Group Flow (vph)	12	605	0	93	376	0	0	132	0	0	53	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	7	4		3	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	22.0		8.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	8.0	40.0	0.0	8.0	40.0	0.0	22.0	22.0	0.0	22.0	22.0	0.0
Total Split (%)	11.4%	57.1%	0.0%	11.4%	57.1%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	4.0	34.0		4.0	34.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	30.6	27.6		33.0	32.1			18.7			18.7	
Actuated g/C Ratio	0.46	0.46		0.53	0.53			0.31			0.31	
v/c Ratio	0.03	0.82		0.30	0.45			0.30			0.12	
Control Delay	6.4	19.3		8.0	10.2			10.6			11.1	

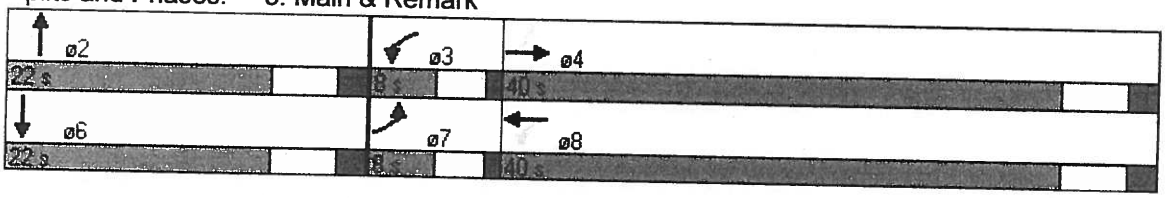
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.4	19.3		8.0	10.2			10.6			11.1	
LOS	A	B		A	B			B			B	
Approach Delay		19.1			9.8			10.6			11.1	
Approach LOS		B			A			B			B	
Queue Length 50th (m)	0.5	56.6		4.2	20.8			3.4			1.5	
Queue Length 95th (m)	2.1	94.0		8.9	49.4			16.4			9.3	
Internal Link Dist (m)		774.2			495.5			380.3			386.4	
Turn Bay Length (m)	15.0			30.0								
Base Capacity (vph)	431	858		313	912			442			435	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.03	0.71		0.30	0.41			0.30			0.12	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 60.6
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 14.4
Intersection Capacity Utilization 63.4%
Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service B

Splits and Phases: 3: Main & Remark



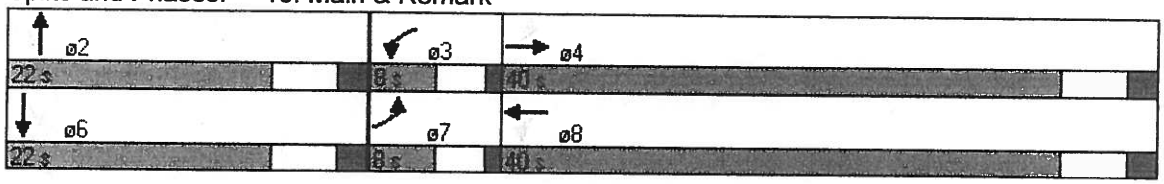
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1775	1650	1650	1775	1650	1650	1550	1550	1550	1550	1550	1550
Storage Length (m)	15.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00			0.98			0.99	
Frt		0.987			0.997			0.924			0.929	
Flt Protected	0.950			0.950				0.981			0.992	
Satd. Flow (prot)	1705	1627	0	1705	1646	0	0	1386	0	0	1390	0
Flt Permitted	0.182			0.260				0.875			0.953	
Satd. Flow (perm)	327	1627	0	465	1646	0	0	1234	0	0	1334	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			2			84			23	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		825.6			468.3			363.1			339.3	
Travel Time (s)		61.9			35.1			27.2			25.4	
Volume (vph)	24	527	49	93	657	14	52	8	77	6	13	21
Confl. Peds. (#/hr)	4		5	5		4	2		2	2		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	2%	0%	0%	5%
Adj. Flow (vph)	26	573	53	101	714	15	57	9	84	7	14	23
Lane Group Flow (vph)	26	626	0	101	729	0	0	150	0	0	44	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	7	4		3	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	22.0		8.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	8.0	40.0	0.0	8.0	40.0	0.0	22.0	22.0	0.0	22.0	22.0	0.0
Total Split (%)	11.4%	57.1%	0.0%	11.4%	57.1%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	4.0	34.0		4.0	34.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	32.9	29.8		34.5	33.0			18.5			18.5	
Actuated g/C Ratio	0.49	0.48		0.54	0.53			0.30			0.30	
v/c Ratio	0.11	0.80		0.31	0.84			0.35			0.11	
Control Delay	6.7	19.8		8.0	21.5			13.4			13.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.7	19.8		8.0	21.5			13.4			13.2	
LOS	A	B		A	C			B			B	
Approach Delay		19.2			19.8			13.4			13.2	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	1.1	59.1		4.5	55.2			6.3			1.9	
Queue Length 95th (m)	3.4	98.6		9.5	#145.5			21.1			9.0	
Internal Link Dist (m)		801.6			444.3			339.1			315.3	
Turn Bay Length (m)	15.0			30.0								
Base Capacity (vph)	243	863		329	922			424			410	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.11	0.73		0.31	0.79			0.35			0.11	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 62.5
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 18.8 Intersection LOS: B
Intersection Capacity Utilization 70.8% ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Main & Remark



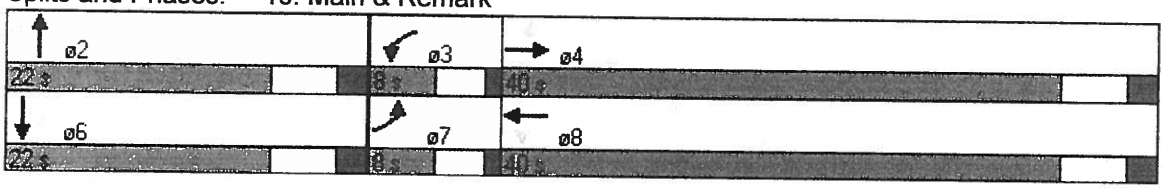
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1775	1650	1650	1775	1650	1650	1550	1550	1550	1550	1550	1550
Storage Length (m)	15.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00			0.98			0.98	
Frt		0.987			0.997			0.924			0.929	
Flt Protected	0.950			0.950				0.981			0.992	
Satd. Flow (prot)	1705	1627	0	1705	1646	0	0	1381	0	0	1385	0
Flt Permitted	0.171			0.250				0.875			0.953	
Satd. Flow (perm)	307	1627	0	448	1646	0	0	1227	0	0	1329	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			2			86			23	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		825.6			468.3			363.1			339.3	
Travel Time (s)		61.9			35.1			27.2			25.4	
Volume (vph)	24	538	50	95	670	14	53	8	79	6	13	21
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	2%	0%	0%	5%
Adj. Flow (vph)	26	585	54	103	728	15	58	9	86	7	14	23
Lane Group Flow (vph)	26	639	0	103	743	0	0	153	0	0	44	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	7	4		3	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	22.0		8.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	8.0	40.0	0.0	8.0	40.0	0.0	22.0	22.0	0.0	22.0	22.0	0.0
Total Split (%)	11.4%	57.1%	0.0%	11.4%	57.1%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	4.0	34.0		4.0	34.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	33.6	30.5		35.1	33.6			18.4			18.4	
Actuated g/C Ratio	0.49	0.48		0.54	0.53			0.29			0.29	
v/c Ratio	0.11	0.81		0.32	0.85			0.37			0.11	
Control Delay	6.7	20.4		8.1	22.2			13.5			13.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.7	20.4		8.1	22.2			13.5			13.3	
LOS	A	C		A	C			B			B	
Approach Delay		19.8			20.5			13.5			13.3	
Approach LOS		B			C			B			B	
Queue Length 50th (m)	1.1	61.1		4.6	57.1			6.5			2.0	
Queue Length 95th (m)	3.4	#102.6		9.6	#150.1			21.4			9.1	
Internal Link Dist (m)		801.6			444.3			339.1			315.3	
Turn Bay Length (m)	15.0			30.0								
Base Capacity (vph)	235	863		322	924			418			404	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.11	0.74		0.32	0.80			0.37			0.11	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 63.1
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 19.4 Intersection LOS: B
Intersection Capacity Utilization 72.0% ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Main & Remark



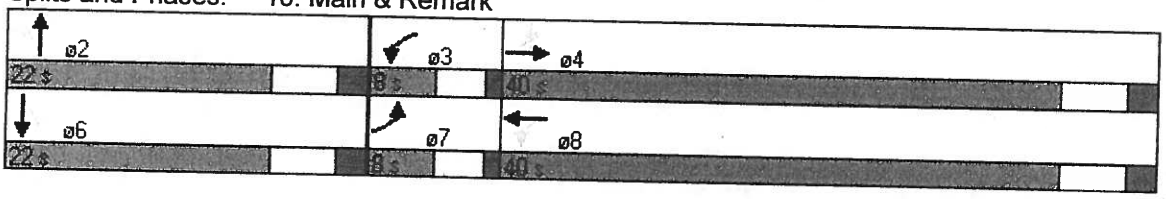
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1775	1650	1650	1775	1650	1650	1550	1550	1550	1550	1550	1550
Storage Length (m)	15.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00			0.98			0.98	
Frt		0.987			0.997			0.926			0.929	
Flt Protected	0.950			0.950				0.981			0.992	
Satd. Flow (prot)	1705	1627	0	1705	1646	0	0	1385	0	0	1385	0
Flt Permitted	0.147			0.229				0.869			0.952	
Satd. Flow (perm)	264	1627	0	410	1646	0	0	1221	0	0	1327	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			2			84			23	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		825.6			468.3			363.1			339.3	
Travel Time (s)		61.9			35.1			27.2			25.4	
Volume (vph)	24	559	53	95	700	14	57	8	79	6	13	21
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	2%	0%	0%	5%
Adj. Flow (vph)	26	608	58	103	761	15	62	9	86	7	14	23
Lane Group Flow (vph)	26	666	0	103	776	0	0	157	0	0	44	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	7	4		3	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	22.0		8.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	8.0	40.0	0.0	8.0	40.0	0.0	22.0	22.0	0.0	22.0	22.0	0.0
Total Split (%)	11.4%	57.1%	0.0%	11.4%	57.1%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	4.0	34.0		4.0	34.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	35.1	32.0		36.6	35.1			18.3			18.3	
Actuated g/C Ratio	0.51	0.50		0.55	0.54			0.28			0.28	
v/c Ratio	0.12	0.82		0.34	0.87			0.39			0.11	
Control Delay	6.8	21.7		8.5	24.3			14.3			13.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.8	21.7		8.5	24.3			14.3			13.4	
LOS	A	C		A	C			B			B	
Approach Delay		21.2			22.4			14.3			13.4	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	1.1	65.6		4.6	61.9			7.5			2.1	
Queue Length 95th (m)	3.4	#125.7		9.6	#160.4			22.6			9.1	
Internal Link Dist (m)		801.6			444.3			339.1			315.3	
Turn Bay Length (m)	15.0			30.0								
Base Capacity (vph)	217	863		306	929			406			393	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.12	0.77		0.34	0.84			0.39			0.11	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 64.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 21.0 Intersection LOS: C
Intersection Capacity Utilization 74.0% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Main & Remark



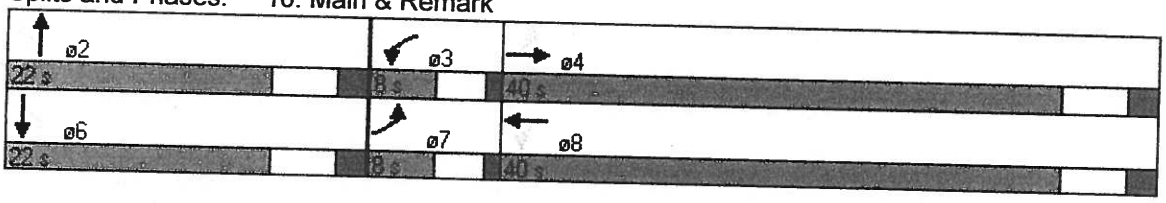
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1775	1650	1650	1775	1650	1650	1550	1550	1550	1550	1550	1550
Storage Length (m)	15.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.98			0.98	
Frt		0.987			0.997			0.924			0.930	
Flt Protected	0.950			0.950				0.981			0.992	
Satd. Flow (prot)	1705	1627	0	1705	1646	0	0	1381	0	0	1387	0
Flt Permitted	0.111			0.197				0.870			0.949	
Satd. Flow (perm)	199	1627	0	354	1646	0	0	1220	0	0	1325	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			2			89			26	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		825.6			468.3			363.1			339.3	
Travel Time (s)		61.9			35.1			27.2			25.4	
Volume (vph)	27	596	55	105	742	16	59	9	87	7	15	24
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	2%	0%	0%	5%
Adj. Flow (vph)	29	648	60	114	807	17	64	10	95	8	16	26
Lane Group Flow (vph)	29	708	0	114	824	0	0	169	0	0	50	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	7	4		3	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	22.0		8.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	8.0	40.0	0.0	8.0	40.0	0.0	22.0	22.0	0.0	22.0	22.0	0.0
Total Split (%)	11.4%	57.1%	0.0%	11.4%	57.1%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	4.0	34.0		4.0	34.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	38.0	34.9		39.6	38.0			18.1			18.1	
Actuated g/C Ratio	0.53	0.52		0.58	0.57			0.27			0.27	
v/c Ratio	0.15	0.83		0.40	0.88			0.43			0.13	
Control Delay	7.5	24.4		9.8	27.8			15.0			13.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.5	24.4		9.8	27.8			15.0			13.3	
LOS	A	C		A	C			B			B	
Approach Delay		23.7			25.6			15.0			13.3	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	1.3	73.1		5.2	69.6			8.3			2.4	
Queue Length 95th (m)	3.7	#139.2		10.5	#175.3			24.2			9.8	
Internal Link Dist (m)		801.6			444.3			339.1			315.3	
Turn Bay Length (m)	15.0			30.0								
Base Capacity (vph)	189	863		282	938			393			376	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.15	0.82		0.40	0.88			0.43			0.13	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 67.2
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 23.6 Intersection LOS: C
Intersection Capacity Utilization 77.5% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Main & Remark



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1775	1650	1650	1775	1650	1650	1550	1550	1550	1550	1550	1550
Storage Length (m)	15.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (m)	15.2	15.2		15.2	15.2		15.2	15.2		15.2	15.2	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.98			0.98	
Frt		0.987			0.997			0.926			0.930	
Flt Protected	0.950			0.950				0.981			0.992	
Satd. Flow (prot)	1705	1627	0	1705	1646	0	0	1384	0	0	1387	0
Flt Permitted	0.111			0.178				0.864			0.949	
Satd. Flow (perm)	199	1627	0	319	1646	0	0	1214	0	0	1325	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			2			84			26	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		825.6			468.3			363.1			339.3	
Travel Time (s)		61.9			35.1			27.2			25.4	
Volume (vph)	27	617	58	105	772	16	63	9	87	7	15	24
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	2%	0%	0%	5%
Adj. Flow (vph)	29	671	63	114	839	17	68	10	95	8	16	26
Lane Group Flow (vph)	29	734	0	114	856	0	0	173	0	0	50	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	7	4		3	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	22.0		8.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	8.0	40.0	0.0	8.0	40.0	0.0	22.0	22.0	0.0	22.0	22.0	0.0
Total Split (%)	11.4%	57.1%	0.0%	11.4%	57.1%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	4.0	34.0		4.0	34.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	39.2	36.0		40.7	39.1			18.0			18.0	
Actuated g/C Ratio	0.54	0.53		0.58	0.57			0.26			0.26	
v/c Ratio	0.15	0.85		0.43	0.91			0.45			0.14	
Control Delay	7.5	26.5		10.6	30.9			16.3			13.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.5	26.5		10.6	30.9			16.3			13.4	
LOS	A	C		B	C			B			B	
Approach Delay		25.8			28.5			16.3			13.4	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	1.3	77.9		5.2	75.3			9.3			2.4	
Queue Length 95th (m)	3.7	#147.5		10.5	#185.1			25.7			9.8	
Internal Link Dist (m)		801.6			444.3			339.1			315.3	
Turn Bay Length (m)	15.0			30.0								
Base Capacity (vph)	189	863		265	944			383			369	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.15	0.85		0.43	0.91			0.45			0.14	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 68.3
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 26.0 Intersection LOS: C
Intersection Capacity Utilization 79.6% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Main & Remark